Amendments to the Claims:

Pursuant to 37 C.F.R. § 1.121 (c), the following listing of all claims in the application replaces all previous versions and listings of claims:

1-2. (Canceled)

3. (Previously presented) The valve assembly of claim 20 wherein:

one of the first valve element or second valve element is an intake valve for permitting flow from an intake port to a pump, and the other of the first valve element or second valve element is an outlet valve for permitting flow from the pump to an outlet port; and
the dimensions of the first and second valve compartments are selected to limit the movement of the first valve element and the second valve element when the pump is moving a fluid flow from the inlet port through the pump to the outlet port, such that at least one of the valve elements is always in the closed position.

4. (Previously presented) The valve assembly of claim 3 wherein the first valve element and the second valve element comprise an elastomeric material.

5. (Previously presented) The valve assembly of claim 4 wherein the first valve element and the second valve element comprise ethylene propylene diene terpolymer

6. (Previously presented) The valve assembly of claim 4 wherein the first valve element and the second valve element comprise a fluoroelastomer.

7. (Previously presented) The valve assembly of claim 4 wherein the first valve element and the second valve element comprise a perfluoroelastomer.

8. (Previously presented) The valve assembly of claim 4 wherein the first valve element and the second valve element comprise silicone.

9. (Previously presented) The valve assembly of claim 4 wherein the first valve element and the second valve element have a hardness from about 40 Durometer to about 90 Durometer, Shore A.

10. (Currently amended) A pump assembly, comprising:

a pump chamber having a first recess formed therein;

a pump head housing having a second recess formed therein, the second recess cooperating with the first recess to define a first valve compartment including a first valve pocket and an opposed first annular valve seat ; and

a non-hinged, flexible first valve element positioned within the first valve compartment to pneumatically float in response to a reciprocating pumping action imposed upon the first valve element, the first valve element having a selected first thickness disposed between the first and second recesses and adapted to move through a stroke length between a closed position against the first valve seat which prevents fluid flow and an open position away from the first valve seat which permits fluid flow, the first valve element cooperatively retained at opposed ends by the pump chamber and the pump head to allow a central portion of the first valve element to symmetrically deflect into the first valve pocket when in the open position;

wherein the dimensions of the first valve compartment are selected to limit the stroke length of the first valve element to less than about 1.6 times the first thickness.

11. (Currently amended) The valve assembly of claim 10 further comprising:

a third recess formed in the pump chamber;

a fourth recess formed in the pump head, the fourth recess cooperating with the third recess to define a second valve compartment including a second valve pocket and an opposed second annular valve seat; and

a non-hinged, flexible second valve element positioned within the second valve compartment to pneumatically float in response to a reciprocating pumping action imposed upon the second valve element, the second valve element having a selected second thickness disposed between the third and fourth recesses, and adapted to move between a closed position against the second valve seat which prevents fluid flow and an open position away from the second valve seat which permits fluid flow in a second direction, the second valve element cooperatively retained at opposed ends by the pump chamber and the pump head to allow a central portion of the second valve element to symmetrically deflect into the second valve pocket when in the open position;

wherein the dimensions of the second valve compartment are selected to limit the stroke length of the second valve element to less than about 1.6 times the second thickness.

12. (Previously presented) The valve assembly of claim 11 wherein the dimensions of the first and second valve compartments are selected such that the stroke lengths of the first valve element and the second valve element are from about 0.19 times the thickness of the respective valve element to about 0.93 times the first and second thicknesses, respectively.

13. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element comprise an elastomeric material.

14. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element comprise ethylene propylene diene terpolymer.

15. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element comprise a fluoroelastomer.

16. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element comprise a perfluoroelastomer.

17. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element comprise silicone.

18. (Previously presented) The valve assembly of claim 12 wherein the first valve element and the second valve element have a hardness from about 40 Durometer to about 90 Durometer, shore A.

19. (Currently amended) A valve assembly for a pump, comprising;

a pump chamber having a first recess formed therein;

a pump head having a second recess formed therein, the second recess cooperating with the first recess to define a first valve compartment having a predetermined depth

between a first valve pocket in the first recess and an opposed first annular valve seat in the second recess; and

a non-hinged, flexible first valve element positioned within the first valve compartment to pneumatically float in response to a reciprocating pumping action imposed upon the first valve element, the first valve element having a predetermined thickness and positioned between the first and second recesses and adapted to flexibly travel between a closed position against the valve seat that prevents fluid flow past the first valve seat and an open position against the first valve compartment that permits fluid flow past the valve seat, the first valve element cooperatively retained at opposed ends by the pump chamber and the pump head to allow a central portion of the first valve element to symmetrically deflect into the first valve pocket when in the open position, the distance of travel of the first valve element between its closed position against the first valve seat and its open position away from the valve seat being less than the thickness of the first valve element to thereby control the amount of deflection and eliminate overtravel by the first valve element as it flexes between the closed and open positions.

20. (Currently amended) The valve assembly of claim 19, further comprising:

a third recess formed in the pump chamber;

a fourth recess formed in the pump head, the fourth recess cooperating with the third recess to define a second valve compartment having a predetermined depth between a ~~first~~ second valve pocket in the third recess and an opposed second annular valve seat in the fourth recess; and

a non-hinged, flexible second valve element positioned within the second valve compartment to pneumatically float in response to a reciprocating pumping action imposed

upon the second valve element, the second valve element having a predetermined thickness and positioned between the third and fourth recesses and adapted to flexibly travel between a closed position against the second valve seat that prevents fluid flow past the second valve seat and an open position against the second valve compartment that permits fluid flow past the second valve seat, the second valve element cooperatively retained at opposed ends by the pump chamber and the pump head to allow a central portion of the second valve element to symmetrically deflect into the second valve pocket when in the open position, the distance of travel of the second valve element between its closed position against the first valve seat and its open position away from the valve seat being less than the thickness of the second valve element to thereby control the amount of deflection and eliminate overtravel by the second valve element as it flexes between the closed and open positions.